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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/208,105	11/25/1998	KAZUHISA SAKAMOTO	10233.81USW1	7685

7590 10/27/2003
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EXAMINER

NADAV, ORI

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 10/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/208,105

Applicant(s)

SAKAMOTO, KAZUHISA

Examiner

ori nadav

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 08 August 2003 is: a) ☐ approved b) ☒ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to because there is no support in the specification as filed for the new location and amount of the crystal defects as depicted in proposed figure 1. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support for radiating rays passing to the region irradiated through the opening and generating crystal defects under the opening so that a smaller amount of radiating rays are irradiated to regions in the substrate except the region under the opening, as recited in claims 9 and 10, since originally filed figure 1 depicts a smaller amount of radiating rays are irradiated to regions under the openings.

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claimed limitations of a smaller amount of radiating rays being irradiated, as recited in claims 9 and 10, is unclear as to what is the amount of radiating rays since applicant does not recite "a smaller amount" from which quantity.

The claimed limitations of radiating rays passing to the region irradiated through the opening and generating crystal defects under the opening so that a smaller amount of radiating rays are irradiated to regions in the substrate except the region under the opening, as recited in claims 9 and 10, is unclear as to the location and amount of the crystal defects with respect to the openings.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 9 and 11-12, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 102(e) as being anticipated by Sakamoto (5,808,352).

Sakamoto teaches in figure 1 and related text a semiconductor device comprising a substrate 10, 11 having a region 11 irradiated with radiating rays, crystal defects 21 within the region irradiated, impurity regions 12, 13 in the substrate, and a light metal wiring layer 18, 19 comprising aluminum located over the substrate and being connected to each of the impurity regions and having an opening above the region irradiated so that radiating rays passing to the region irradiated through the opening and generating crystal defects under the opening so that a smaller amount of radiating rays are irradiated to regions in the substrate except the region under the opening

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Regarding claims 11 and 12, Sakamoto teaches in figures 1 an insulation layer being formed above the region irradiated, the opening being on the insulating layer, and the metal wiring 18, 19 covers part of the insulating layer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 10, insofar as in compliance with 35 U.S.C. 112, is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto.

Sakamoto teaches substantially the entire claimed structure, as applied to claim 9 above, except a metal wiring layer having a thickness so as to restrict penetration of rays into the region irradiated. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a metal wiring layer having a thickness so as to restrict penetration of rays into the region irradiated in Sakamoto's device in order to restrict penetration of rays into the region irradiated

4. Claims 13-14, insofar as in compliance with 35 U.S.C. 112, is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto in view of Takahashi (5,981,981)

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Sakamoto teaches substantially the entire claimed structure, as applied to claim 9 above, except using the invention in an IGBT and a MOSFET semiconductor device, wherein the impurity region is a source region. Takahashi teaches in figure 30 an IGBT and a MOSFET semiconductor device, wherein the impurity region is a source region. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Sakamoto's invention in an IGBT and a MOSFET semiconductor device, wherein the impurity region is a source region in order to use the invention in an application which requires an IGBT and a MOSFET semiconductor device. The claimed limitation of a radiated region being a positive-negative junction where a parasitic diode is generated is inherent in prior art's device.

Response to Arguments

5. Applicant argues that Sakamoto does not teach radiating rays passing to the region irradiated through the opening and generating crystal defects under the opening so that a smaller amount of radiating rays are irradiated to regions in the substrate except the region under the opening.

The claimed limitation of radiating rays passing to the region irradiated through the opening and generating crystal defects under the opening so that a smaller amount of radiating rays are irradiated to regions in the substrate except the region under the opening is taught by Sakamoto since figure 1 depicts radiating rays passing to the region irradiated through the opening and

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generating crystal defects 21 under the opening so that a smaller amount of radiating rays are irradiated to regions in the substrate except the region under the opening (the crystal defects located to the left and right of crystal defects 21).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800

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via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is (703) 308-8138. The Examiner is in the Office generally between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**



O.N.
October 25, 2003

ORI NADAV
PATENT EXAMINER
TECHNOLOGY CENTER 2800